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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/630,156

07/30/2003

Jerrold E. Franklin

ALT6089.02A

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01/27/2009

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EXAMINER

WILLS, MONIQUE M

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

01/27/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/630,156	<b>Applicant(s)</b> FRANKLIN ET AL.	
	<b>Examiner</b> Monique M. Wills	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 12-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 12-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

This Office Action is responsive to the Amendment filed October 9, 2008. The rejection of claims 1-9 & 12-20 under 35 U.S.C. 103(a) as being obvious over Franklin et al. U.S. Pub. 2002/0022382 in view of Lenz et al. U.S. Pub. 2002/0127459, is applied on new grounds..

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9 & 12-20 are rejected under 35 U.S.C. 103(a) as being obvious over Franklin et al. U.S. Pub. 2002/0022382 in view of Lenz et al. U.S. Pub. 2002/0127459.

In re claims 1,10 & 20, Franklin teaches a fuel cell assembly comprising: a bipolar separator plate having a first side and a second side (Fig. 6); a membrane electrode assembly attached to said first side (Fig. 6); independently-acting compliant members attached to said second side (par 75); and a conductive electrical contact

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attached to said independently acting compliant members (par. 99). The limitation of claim 1, with respect to the conductive electrical contact being laminar, is considered an inherent characteristic of the conductive contact set forth, because the conductive contact of Franklin is a thin metal conductive plate. (See Merriam Webster's Collegiate Dictionary Tenth Edition, where it defines "laminar" as a thin plate). As to claims 3 & 4, the second and third laminar electrical contacts are attached to individual subsets of compliant members. See Figure 13 and Claim Interpretation section above. With respect to claims 5 & 11, the independently acting compliant members are springs (par. 95). With respect to claim 9, the fuel cell stack comprises multiple cells, wherein the laminar electrical contact of said first cell is in electrical contact with the membrane electrode assembly of the second cell. See Figure 14. Specifically, when the spring arrays are compressed, the individual spring contacts of neighboring cells are in positive electrical contact See Par. 100. With respect to claim 12, independently acting compliant members and a laminar electrical contact are placed between bipolar separator plates and membrane electrode assemblies. See Figure 13.

In re claim 13, Franklin teaches a fuel cell assembly comprising: a bipolar separator plate having a first side and a second side (Fig. 6); a membrane electrode assembly attached to said first side (Fig. 6); independently-acting compliant members attached to said second side (par 75); and a conductive electrical contact attached to said independently acting compliant members (par. 99). The independently-acting compliant members are flexible (par. 79) and make electrical contact with the bipolar plate (par. 75). As to claims 14 & 15, the second and third laminar electrical contacts are attached

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to individual subsets of compliant members. See Figure 13 and Claim Interpretation section above. With respect to claim 17, the fuel cell stack comprises multiple cells, wherein the laminar electrical contact of said first cell is in electrical contact with the membrane electrode assembly of the second cell. See Figure 14. Specifically, when the spring arrays are compressed, the individual spring contacts of neighboring cells are in positive electrical contact See Par. 100. See also, Figure 13 and Claim Interpretation section above. With respect to claim 18, the fuel cell stack comprises multiple cells, wherein the laminar electrical contact of said first cell is in electrical contact with the membrane electrode assembly of the second cell. See Figure 14. Specifically, when the spring arrays are compressed, the individual spring contacts of neighboring cells are in positive electrical contact See Par. 100. See also, Figure 13 and Claim Interpretation section above. With respect to claim 20, the fuel cell stack comprises multiple cells, wherein the laminar electrical contact of said first cell is in electrical contact with the membrane electrode assembly of the second cell. See Figure 14. Specifically, when the spring arrays are compressed, the individual spring contacts of neighboring cells are in positive electrical contact See Par. 100. See Figure 13 and Claim Interpretation section above.

Franklin does not teach: laminar contacts, *a separate compliant ember and bipolar separator plate* (claims 1, 12, 13, 18 & 19), apertures in the conductive laminar contacts. The reference is concerned with fastening attachments with bolts and screws (claims 2 & 16, see par. 74). Franklin also does not expressly disclose: the length of the array of laminar electrical contacts being approximately equal to the length of the

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membrane electrode assembly (claim 6); or the width of the laminar array being approximately equal to the width of the membrane electrode assembly (claims 7 & 8).

Lenz teaches that it is conventional to teach laminar interconnects (having a thin plate portion) in order to provide mechanically robust fuel cell stacks with higher stack performance at lower costs (See the Abstract and Fig. 3A).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ the laminar interconnects of Lenz, in the fuel cell of Franklin, in order to provide mechanically robust fuel cell stacks with higher stack performance at lower costs.

With respect to separate compliant members, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ a separate compliant member and bipolar separator plate in the fuel cell of Franklin, because such a modification would require a mere duplication of parts. It has been held that mere duplication of parts of essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. Multiple laminar plates serve as fuel cell interconnects that increase electrical conductivity in the fuel cell. Alternatively, a well known fuel cell interconnect may be employed in the fuel cell to form the instant structure to increase electrical contact within the fuel cell.

With respect to claims 2 & 16, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ apertures in the conductive laminar contacts, in order to securely attach the contacts to the compliant members. As recognized by Franklin, the skilled artisan recognizes that fastening

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attachments such as apertures with screw fittings firmly secure abutting members (claims 2 & 16).

With respect to claims 6, 7 & 8, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ laminar contacts across the entire length and width of the membrane electrode assembly, in order to optimize performance of the fuel cell by facilitating electrical conduction and reducing electrical resistance. Franklin recognizes that the contact area facilitates electrical conduction and reduces resistance, suggesting that maximum electrical contact coverage (both length and width) is desired (claims 6, 7 & 8).

### ***Response to Arguments***

Applicant's arguments have been fully considered and are partially persuasive. Applicant contend that the word: that is emphasized both is a typographical error, and both the bipolar plate and thin mental conductive plate are the same. However, as stated in the above rejection, it would have been obvious to duplicate the bipolar plate in the fuel cell so that the independent compliant members are attached to the conductive laminar electrical contact. Alternatively, a well known fuel cell interconnect may be employed in the fuel cell to form the instant structure to increase electrical contact within the fuel cell. . Therefore, the rejection has been applied on new grounds.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (571) 272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Patrick Ryan, may be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


/Monique M Wills/

Examiner, Art Unit 1795

/Stephen J. Kalafut/

Primary Examiner, Art Unit 1795



<b>Application Number</b> 	<b>Application/Control No.</b>	<b>Applicant(s)/Patent under Reexamination</b>	
	10/630,156	FRANKLIN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Monique M. Wills	1795	